

Atty. Dkt. No. 016790-0398

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Gerhard HOPPEN
Title: DUV-CAPABLE MICROSCOPE OBJECTIVE
WITH PARFOCAL IR FOCUS
Appl. No.: 09/598,406
Filing Date: 06/21/2000
Examiner: A. Chang
Art Unit: 2872

DECLARATION OF DAGMAR ELVERS

Commissioner for Patents
PO Box 1450
Alexandria, Virginia 22313-1450

Sir:

I Dagmar Elvers hereby declare as follows:

1. I am a member of the Patent and Trademark Department of Leica Microsystems and I am making this Declaration in connection with the above-identified application. My technical background is in physics and in particular optics.
2. A commercial embodiment of the invention described in the above-identified application was sold under the product name Leica LWM 250 DUV. The LWM 250 DUV is a line width measurement system having a microscope which has an objective as shown in Figure 4 and as detailed in Figure 8 of the above-identified application. A copy of the sales brochure for the LWM 250 DUV, as well as the specifications and acceptance tests for the LWM 250 DUV are enclosed herewith as Exhibits 1 and 2.¹

¹ The specifications and acceptance tests in Exhibit 2 were the specification and acceptance tests used for the sale of the LWM 250 DUV to FEI Company, referred to in paragraph 4 below.

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3. As indicated by the sales brochure (page 2) and the specifications (page 15), the LWM 250 DUV uses a 248 nm DUV imaging beam and a 904 nm IR automatic focusing beam. The LWM 250 DUV thus requires a focal point at 248 nm (to produce images of a specimen) and at 904 nm (to provide automatic focusing).

4. An LWM 250 DUV was sold to a customer, FEI Company, and the customer supervised and observed testing by Leica personnel to confirm that the microscope met all requirements, including providing acceptable images at 248 nm and automatic focusing using 904 nm IR light. A copy of the test report (with handwritten translations) is enclosed as Exhibit 3. As indicated in the test report, on page 4, at position 5, a "150 DUV" objective is provided. This terminology means a 150 times objective that operates at 248 nm. On page 3, the customer has signed the report, indicating that the microscope operated satisfactorily and was accepted.

5. Section 3.7.5 documents testing to confirm that the 248 nm image is clear and that the 904 nm automatic focusing system operated satisfactorily. In this testing, the operator viewed certain standardized substrates which contain various patterns (for example, fine lines) using different objectives (250x to 5x, including the 150 times DUV objective).² The standardized substrates have different reflectivity (96% to 1%). All combinations of the different objectives and the different substrates were tested. If the image was clear for a particular objective and substrate, a zero was placed in the corresponding block in section 3.7.5. If the 248 nm image is clear, this means that both the 248 nm imaging beam and the 904 nm autofocusing beam have the same focal point. Thus, the zeros in the chart in the 150x row of section 3.7.5 indicate that the 248 nm imaging beam and the 904 nm autofocusing beam had the same focal point with the 150 times DUV objective, for all different substrates. The other objectives were tested with visual light illumination and a 904 nm autofocusing beam.

6. In section 3.7.6, the checkmarks indicate an acceptable image and acceptable autofocusing after an objective was changed (for example, from a 5x objective to a 10x objective).

² All of the objectives except for the 150 times DUV objective are for visual light illumination with 904 nm autofocusing.

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7. Accordingly, a commercial model having a 150 times DUV objective (according to the invention described in the above-identified patent application) had the same focal point for both 248 nm DUV light and 904 nm IR light.

8. I further declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

February 5, 2004
Date

Dagmar Elvers
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